

CLAIM LISTING

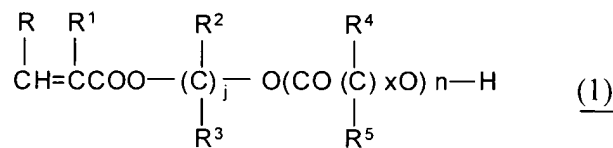
This claim listing supersedes all previous claim listings for this case.

Claims 2-7 are canceled.

Claim 12 (canceled)

Claim 21 (currently amended): A curable resin composition comprising:

- (i) 0.5 – 80 parts by weight of an acrylic polyol resin (A) ~~obtained using~~ comprising
~~the a~~ a hydroxyalkyl(meth)acrylate composition as claimed in claim 87 having
0.3 to less than 1.0 mole of polymerized lactone monomer being
polymerized by ring-opening with respect to 1 mole of
hydroxyalkyl(meth)acrylate, wherein the content of the lactone
monomer in the hydroxyalkyl(meth)acrylate composition is 0-10%
by weight, and
a proportion of monomers having two or more continuous chains (n ≥
2) of lactones less than 37.4% (area by GPC),
the hydroxyalkyl(meth)acrylate composition being represented by
formula (1) described below,



where

R, R¹, R², and R³ are independently a hydrogen or a methyl group,

“j” is an integer of 2-6,

xn pieces of R⁴ and R⁵ are independently a hydrogen or an alkyl group

having a carbon number of 1-12,

“x” is 4-7,

“n” is an integer greater than or equal to zero, and

an average value of “n” in the composition is not less than 0.3 to less than 1.0,

~~in which a proportion of monomers having not less than 2 continuous chains (n≥2) of lactones is less than 50% (GPC area %), as polymerizing components, and~~

(ii) 0.5 parts by weight of a melamine resin (B),

wherein the total of (A) and (B) does not exceeding exceed 100 parts by weight.

Claim 22 (previously presented): A curable resin composition as claimed in claim 21, wherein said hydroxyalkyl(meth)acrylate composition is obtained using a hydroxyethyl(meth)acrylate.

Claims 26 –27 are canceled.

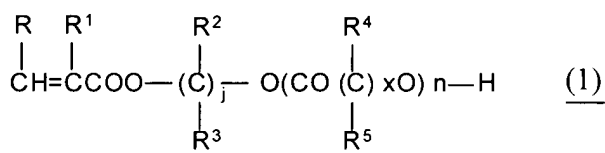
Claims 31 – 37 are canceled.

Claims 39-40 are canceled.

Claim 46 (currently amended): A thermosetting resin composition which comprises:

2-50 parts of an acrylic polyol resin (VII-A) containing ~~a the~~ hydroxyalkyl(meth)acrylate composition comprising

0.3 to less than 1.0 mole of polymerized lactone monomer being
polymerized by ring-opening with respect to 1 mole of
hydroxyalkyl(meth)acrylate, wherein the content of the lactone
monomer in the hydroxyalkyl(meth)acrylate composition is 0-10%
by weight, and
a proportion of monomers having two or more continuous chains ($n \geq$
2) of lactones less than 37.4% (area by GPC),
the hydroxyalkyl(meth)acrylate composition being represented by
formula (1) described below,



where

R, R¹, R², and R³ are independently a hydrogen or a methyl group,

"j" is an integer of 2-6,

xn pieces of R⁴ and R⁵ are independently a hydrogen or an alkyl group
having a carbon number of 1-12,

"x" is 4-7,

"n" is an integer greater than or equal to zero, and

an average value of "n" in the hydroxyalkyl(meth)acrylate
composition is not less than 0.3 to less than 1.0,

as claimed in claim 87, wherein a proportion of monomers having not less than 2

continuous chains ($n \geq 2$) of lactones is less than 50% (GPC area %),

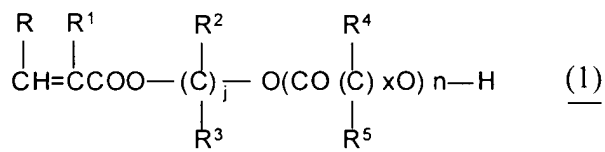
and 30-80 parts of an acrylic copolymer (VII-B) having an alkoxyisilyl group,

wherein the total of (VII-A) and (VII-B) is being 100 parts by weight.

Claim 47 (previously presented): A thermosetting resin composition as claimed in claim 46, wherein said acrylic polyol resin (VII-A) has at least one kind of group selected from the group consisting of an acid anhydride group, an epoxy group, an amino group, and a carboxylic group.

Claim 55 (currently amended): A method for the preparation of a carboxylic group-containing acrylate composition (a') represented by a general formula (VIII-3) described below, said method comprising:

reacting ~~the~~ a hydroxyalkyl(meth)acrylate composition, said hydroxyalkyl(meth)acrylate composition comprising as claimed in claim 87, 0.3 to less than 1.0 mole of polymerized lactone monomer being polymerized by ring-opening with respect to 1 mole of hydroxyalkyl(meth)acrylate, wherein the content of the lactone monomer in the composition is 0-10% by weight, and a proportion of monomers having two or more continuous chains (n ≥ 2) of lactones less than 37.4% (area by GPC),
the composition being represented by formula (1) described below,



where

R, R¹, R², and R³ are independently a hydrogen or a methyl group,

“j” is an integer of 2-6,

xn pieces of R⁴ and R⁵ are independently a hydrogen or an alkyl group

having a carbon number of 1-12,

“x” is 4-7,

“n” is an integer greater than or equal to zero, and

an average value of “n” in the composition is not less than 0.3 to less

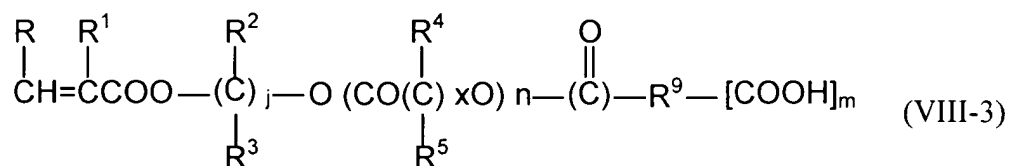
than 1.0,

~~in which a proportion of monomers having not less than 2 continuous chains~~

~~(n≥2) of lactones is less than 50% (GPC area %), with a carboxylic acid~~

~~or anhydride thereof (VIII-b) represented by a general formula (VIII-2)~~

~~described below,~~



(in the formula, R, R¹, R², and R³ are independently a hydrogen or a methyl group, “j” is an integer of 2-6, xn pieces of R⁴ and R⁵ are independently a hydrogen or an alkyl group having a carbon number of 1-12, “x” is 4-7, “n” is an integer greater than or equal to zero, an average value of “n” in said composition is not less than 0.3 to less than 1.0, R⁹ is a residual group of a carboxylic acid, and “m” is an integer of 1-3).

Claim 56 (previously presented): A method for the preparation of a carboxylic group-containing acrylate composition (a') as claimed in claim 55, wherein said reaction of said hydroxyalkyl(meth)acrylate composition with said carboxylic acid or anhydride thereof (VIII-b) is conducted at a temperature range of 40 – 160 °C.

Claim 59 (previously presented): A curable resin composition which comprises 10-70 parts of an acrylic polycarboxylic acid resin (A') comprising:

the carboxylic group-containing acrylate composition (a'), comprising a small amount of lactones, represented by the general formula (VIII-3) as claimed in claim 55, in which a proportion of monomers having not less than 2 continuous chains ($n \geq 2$) of lactones is less than 50% (GPC area %), as a polymerizing component, and

10-80 parts of a polyepoxide (IX-B).

Claim 60 (previously presented): A curable resin composition as claimed in claim 59, wherein said carboxylic group-containing hydroxy(meth)acrylate composition (a') is obtained by allowing to react said hydroxyalkyl(meth)acrylate composition, in which a proportion of monomers having not less than 2 continuous chains ($n \geq 2$) of lactones is less than 50% (GPC area %), with said carboxylic acid or anhydride thereof represented by the following general formula:



wherein R^9 is a residual group of a carboxylic acid, and “m” is an integer of 1-3.

Claim 61 (previously presented): A curable resin composition as claimed in claim 60, wherein said carboxylic group-containing hydroxy(meth)acrylate composition (a') comprising a small amount of lactones is obtained by allowing to react 0.9 – 1.1 mol of said carboxylic acid or anhydride thereof with respect to 1 mol of said hydroxy(meth)acrylate composition (a) comprising a small amount of lactones.

Claims 71-73 are canceled.

Claim 82 (previously presented): A method for the preparation of a polyester unsaturated monomer composition, comprising a small amount of lactones, wherein 0.3-less than 1.0 mole of a lactone monomer is polymerized by ring-opening with respect to 1 mole of a radically polymerizable unsaturated monomer containing carboxylic group, whereby, a proportion of monomers having not less than 2 continuous chains ($n \geq 2$) of lactones is adjusted to less than 50% (GPC area %).

Claim 83 (previously presented): A method for the preparation of a polyester unsaturated monomer composition comprising a small amount of lactone as claimed in claim 82, wherein an acidic catalyst is a Lewis acid or a Brønsted acid.

Claim 85 (previously presented): A method for the preparation of a polyester unsaturated monomer composition comprising:

polymerizing, by ring-opening, 0.3 – less than 1.0 mole of a lactone monomer with respect to 1 mole of a radically polymerizable unsaturated monomer containing carboxylic group by using stannous halide, monobutyltin tris-2-ethylhexanate, stannous octoate, dibutyltin dilaurate, or a mixture thereof as a catalyst, and separating the unreacted radically polymerizable unsaturated monomer containing carboxylic group.

Claim 86 (previously presented): A method of the preparation of a polyester unsaturated monomer composition as claimed in claim 85, wherein the catalyst to be employed in said polymerization is less than 1000 ppm by weight based on total amount to be fed.

Claims 87-88 are canceled.